

**RXTE TIMING AND SPECTROSCOPY
OF BLACK HOLE BINARY IN OUTBURST**

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Final Report

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Principal Investigator
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<p>The Smithsonian Astrophysical Observatory is a member of the Harvard-Smithsonian Center for Astrophysics</p>

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Report on Grant NNG04GP18G

RXTE Timing and Spectroscopy of a Black Hole Binary in Outburst

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Note: This report is submitted so that the PI may transfer the award from SAO to The Univ. of Michigan Dept. of Astronomy. The PI will be an assistant professor of astronomy starting on Sept. 1 2005.

Award Start Date: September 1 2004

Proposed SAO End Date: August 31 2005

Proposed Univ. of Michigan Start Date: October 1 2005

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1 Work Completed at SAO

Under this program, RXTE made observations of the Galactic black hole X-ray binary GX 339-4. These observations were timed to be simultaneous with Chandra observations of the same source. Supporting multi-wavelength observations were also obtained using optical and radio telescopes.

The RXTE data have been partially analyzed, and will be published in a paper summarizing both the Chandra and RXTE spectral results. The RXTE spectra are instrumental in defining the continuum spectrum in the Chandra data. Moreover, the timing properties measured with RXTE are essential to diagnosing the "state" of the black hole when it was observed by the array of telescopes organized for this effort.

2 Future Work Under this Grant

The analysis of the RXTE spectra and source variability properties needs to be finalized, and the results need to be published and reported. In order to support the work required to finish the analysis, and to report and publish the results, the full remainder of the grant should be transferred with the PI to the Univ. of Michigan.